CHAPTER II.

PRODUCTION.

Minerals.

Iron.

IRON[1] ore is found in different places in the main range and spurs of the Sahyádris and in the island of Basrádurg about a mile off the coast to the north of Honávar. The ore is compact and in colour is dark-brown with a brown streak. Its specific gravity is 3·90. Though no ore is at present (1882) smelted, there are signs that iron was formerly manufactured in different parts of the Sahyádris.

Building Stone.

The building stone in general use below the Sahyádris is iron-clay or laterite, and sometimes granite and granitic schist and clay slate; above the Sahyádris it is nearly always granite. The laterite is a clay stone generally strongly laden with oxide of iron. It is so full of cracks and crannies that heavy rain beating against a new wall soaks through in an hour. Laterite is preferred by the people, and for small bridges and culverts it is the most serviceable stone, especially if protected by plaster, as many of the old Madras bridges are. For large bridges laterite is too soft and suffers when in the bed of a fairly sized stream. Laterite varies in quality from a hard compact stone which never decays to a soft variety which crumbles in the hand. It is cut into blocks of any size and hardens somewhat on exposure to the air. Blocks measuring $18'' \times 9'' \times 6''$ can be got by contract at the quarry for 5*s.* (Rs. $2\frac{1}{2}$) the hundred, that is about 10*s.* (Rs. 5) the hundred cubic feet. The men who quarry these stones are nearly all Goanese and are brought in gangs from Goa. The rate for the best laterite masonry is about £2 16*s.* (Rs. 28) the hundred cubic feet.

Granite, of many kinds and varying greatly in price, is largely used as cut stone and as rubble in bridges. It is seldom used in other buildings. Granitoid gneiss, one of the many varieties of granite, varies from white to dark grey in colour, and breaks into good square blocks of any size that is required. Rubble stones cost about 12*s.* (Rs. 6) and much larger blocks £1 to £1 10*s.* (Rs. 10 - Rs. 15) the hundred cubic feet. From its hardness granite is expensive to work, the dressing costing about £1 5*s.* (Rs. $12\frac{1}{2}$) the hundred cubic feet. Course stone work costs £2 8*s.* to £3 (Rs. 24 - Rs. 30) the hundred cubic feet, and for bridges the cost varies from £5 to £8 (Rs. 50 - Rs. 80) according to quality. Nearly all the Gaundis or masons come from

[1] The account of minerals is from materials supplied by the Executive Engineers Messrs. W. J. Lister, R.E., and K. G. Desai.

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Belgaum and Dhárwár. They seldom stop in the district between the end of May and the end of November as, during these months, the climate is very unhealthy for natives of the Deccan, Belgaum and Dhárwár. Trap is almost unknown in Kánara. The only place where it has been seen is in one or two small dykes in the granite

Road Metal.

on the island of Kurmagad in Kárwár harbour. For road metal, granite, quartz where there is no granite, and an iron stone or hematitic schist are used. The cost of quarrying and preparing varies from 10*s.* to 18*s.* (Rs. 5 - Rs. 9) the hundred cubic feet according to the hardness. In some places the laterite is broken into larger pieces than the usual metal. This costs about 6*s.* (Rs. 3) the hundred cubic feet. The rocks and the rapids in most Kánara

Sand.

river beds make the supply of river sand scanty. Along the coast sand is found mixed with salt in tidal creeks. To dig and carry it costs 2*s.* to 10*s.* (Re. 1 - Rs. 5) the hundred cubic feet.

Clay.

The nearest approach to brick clay is the black pond-bed mud. This makes into bricks, but bricks are seldom used owing to the cheapness and plentifulness of iron stone. A white clay fitted for making porcelain is found at Ramanguli and Idgunji on the Dhárwár-Kárwár road and at other places. The potters of Ramanguli and Haliyál make good unglazed vessels of this clay.

Lime.

Above the Sahyádris the lime in general use is made from lime-stone pebbles dug out of the banks of streams. These pebbles are by no means plentiful, and, in the depth of the forests where no lime-pebble beds have been found, it is cheaper to bring shell lime from the coast. This pebble lime when burnt costs from £3 to £6 (Rs. 30 - Rs. 60) the hundred cubic feet, but if properly made it is of first-rate quality. The lime is slightly hydraulic and sets hard if it is allowed to dry for two days before putting under water. On the coast, lime is made by burning cockle and oyster shells which are abundant in most creeks and rivers, especially in the Kálinadi. As it is a pure lime and does not set under water it is not of much use by itself, but, if carefully mixed with *surki* or powdered bricks and sand in equal parts, it does well in all works that are not subject to water. In works which have to stand water, shell lime is mixed with Portland cement in the proportions of one part lime, two parts sand and a quarter part Portland cement. The mixing requires great care and should not be attempted without unusually good supervision. Burnt shell lime costs about £2 10*s.* (Rs. 25) the hundred cubic feet. The coral found near Kárwár has been tried but does not make good lime. The water-worn pinnacles of magnesian limestone known as the Yena Rocks do not yield good lime. The same may be said of the Yellápur lime, which, though very pure, almost like alabaster, does not yield good results.

Tiles.

Tiles are made from the ordinary black pond-earth which is found almost everywhere. They are of two kinds, pan and pot tiles. Pan tiles are made throughout the district and cost 6*s.* to 10*s.* (Rs. 3 - Rs. 5) the thousand. Superior pot tiles, measuring 15″ × 5″, are made in Haliyál and Mundgod, and though for lightness they are only ⅜″ thick they are so waterproof that a single tiling is enough. They cost 9*s.* (Rs. 4½) the thousand. Large ridge tiles cost 6*s.* (Rs. 3) the hundred.